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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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ALEXANDRIA, VA 22314

EXAMINER

PHU, SANH D

ART UNIT	PAPER NUMBER
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2682

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DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/862,439

Applicant(s)

KANEDA ET AL.

Examiner

Sanh D Phu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-9 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections – 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1–3, 6–9 are rejected under 35 U.S.C. 102(b) as being anticipated by Nohara et al (5,428,832).

Regarding to claim 1, see Fig. 1, 2, col. 4, lines 20–45, Nohara et al disclose a wireless communication apparatus (Fig. 1) comprising:

a multipath detection part (1,6) which detects a state of multipath in said wireless communication apparatus (see col.4, lines 20–45); and

a send part (4) which sends multipath detection information detected by said multipath detection part to a wireless communication apparatus at the

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other end (the detecting result is transmitted to a noise suppression control means 3, col. 4, lines 20-45).

Regarding to claim 2, see Fig. 1, 2, col. 4, lines 20-45, Nohara et al disclose a wireless communication apparatus comprising:

a multipath component canceling signal generation part (6) which generates a signal which cancels a multipath component in a wireless communication apparatus at the other end on the basis of multipath detection information representing a state of multipath sent from said wireless communication apparatus at the other end (the noise suppression control means receives the signal from the tuner 1 and removes the noise component of this input signal, see col. 4, lines 29-45); and

a send part (4) which sends said signal which cancels said multipath component generated in said multipath component canceling signal generation part to said wireless communication apparatus at the other end (see col. 4, lines 29-45).

Regarding to claim 3, see Fig. 1, 2, col. 4, lines 20 to col. 5, line 24), Nohara et al disclose the wireless communication apparatus said multipath component canceling signal generation part comprising:

a multipath component generation part (6) which generates a multipath component on the basis of said multipath detection information representing said state of multipath in said wireless communication apparatus at the other end (see col. 4, lines 46–55) ; and

an interference wave detection part (6C) which detects an interference wave occurring between said multipath component and a send wave (see col.4, line 56 to col. 5, line 2).

Regarding to claim 6, see Fig. 3, col. 5, lines 21–52, Nohara et al disclose the wireless communication apparatus wherein said wireless communication apparatus sends an opposite phase wave of said signal (4) which cancels said multipath component at a time position of a multipath having no interference in order to cancel said signal which cancels said multipath component (4d) (see col. 5, lines 24–52).

Regarding to claim 7, Nohara et al disclose a wireless communication method comprising the step of:

a wireless communication apparatus sending a signal ($A_k + K_{kk}$) which cancels a multipath component in a wireless communication apparatus at the other end to said wireless communication apparatus at the other end with a send signal (see col. 5, lines 21-52).

Regarding to claim 8, Nohara et al disclose the wireless communication method wherein said signal which cancels said multipath component is a signal inverted (4d) from an interference wave signal generated from said multipath component in said wireless communication apparatus at the other end (see col. 5, lines 21-52).

Regarding to claim 9, see Fig. 1, 2 and 3, col. 4, lines 20-45, Nohara et al disclose a wireless communication method comprising the steps of:

a first wireless communication apparatus (tuner 1) detecting a state of multipath in said first wireless communication apparatus (see col. 4, lines 20-45);

said first wireless communication apparatus (Tuner 1) sending multipath detection information on said state to a second wireless communication apparatus (1,6) (the detecting result is transmitted to a noise suppression control means 3, col. 4, lines 20–45);

said second wireless communication apparatus receiving said multipath detection information (see col. 4, lines 20–45);

said second wireless communication apparatus generating a signal for canceling a multipath component in said first wireless communication apparatus on the basis of said multipath detection information (see Fig. 3, see col. 5, lines 24–52); and

said second wireless communication apparatus sending said signal ($A_k + K_{kk}$) for canceling said multipath component to said first wireless communication apparatus (see col. 5, lines 21–52).

Allowable Subject Matter

2. Claim 4 and 5 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 4 and 5 the prior art of record fails to teach the wireless communication apparatus wherein said interference wave detection part comprising: a filter part which filters a synthesized wave of said multipath component and said send wave; and an interference wave signal generation part which generates an interference wave signal corresponding to that in said wireless communication apparatus at the other end by comparing output signal from said filter part and said send wave.

Conclusion

4. References Kennedy et al (5,249,233) and Honma (5,557,646) are additionally cited because they are pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D Phu whose telephone number is (703) 305-8635. The examiner can normally be reached on 8:00-16:30.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703-301-6739. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-8635.

Sanh D. Phu
Examiner
Art Unit 2682

SP


VIVIAN CHIN
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3/19/04